

Effects of Volcanic Eruptions on Ozone

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Large volcanic eruptions can influence stratospheric ozone due to increases in aerosol surface area through perturbations to the reactive nitrogen and chlorine families. The observational evidence for ozone loss after the eruption of Mt. Pinatubo will be discussed. A two-dimensional model is used, along with the observational record of stratospheric aerosol, to investigate the influence of aerosol perturbations on both the long term (decadal) and short term (inter-annual) changes in ozone. These are compared with the observed ozone time series. In addition, the sensitivity to the background aerosol level, the level of chlorine loading, and the different sensitivity of Northern and Southern Hemisphere ozone to aerosol perturbations are discussed.